Indiana Department of Environmental Management
Office of Water Management
Assessment Branch

FACT SHEET
IDEM 32/01/020/1999
November 1999

WILDCAT CREEK WATERSHED

Total Maximum Daily Load Development for Dissolved Oxygen and Ammonia Impairments

KOKOMO CREEK

Background

Kokomo Creek is located in the Wildcat Creek watershed in north-central Indiana (see attached map). Kokomo Creek is approximately 16 miles long and its watershed drains 36 square miles. The upper portion of the watershed is predominantly farmland with few residences located along the creek. The creek has been channeled in several places and is exposed to sunlight. The water appears muddy and turbid with excessive growths of algae. The lower portion of Kokomo Creek is more shaded and travels a meandering course through residential, commercial, and industrial areas. There are five permitted discharges on Kokomo Creek: Regency Mobile Home Park Wastewater Treatment Plant, Taylor High School Wastewater Treatment Plant, Timbernest Apartments Wastewater Treatment Plant, Delco Electronics Corporation Noncontact Cooling Water discharge, and Chrysler Transmission Plant Stormwater discharge.

Kokomo Creek was listed on Indiana's 1996 and 1998 List of Impaired Waterbodies. Impaired waterbodies are those that do not meet one or more of Indiana's Water Quality Standards. Kokomo Creek is impaired by low levels of dissolved oxygen, high levels of ammonia, and a fish consumption advisory caused by polychlorinated biphenyl (PCB) contamination in the fish tissues. As required by section 303(d) of the Clean Water Act, two Total Maximum Daily Loads (TMDLs) are being developed to address the dissolved oxygen and ammonia impairments for Kokomo Creek. The PCB impairment will be addressed at a later date.

What is a Total Maximum Daily Load?

A Total Maximum Daily Load (TMDL) describes the amount of a pollutant that a waterbody can assimilate and still meet the water quality standards that protect the aquatic life and human uses of that waterbody. This description involves looking for the sources of the pollutant and implementing a plan to reduce the pollutant from entering the waterbody. The pollutants may come from point sources or nonpoint sources. Point source discharges are regulated through the National Pollutant Discharge Elimination System (NPDES), and are typically wastewater treatment plants and industrial facilities. Nonpoint sources of pollutants include runoff from parking lots, farm fields, construction sites, failing septic systems, and livestock operations. The TMDL will allocate the amount of pollutant - the pollutant load - allowed to come from each of the point and nonpoint sources in order to assure that the water quality standards will not be violated. The TMDL will be a comprehensive plan to eliminate the impairment and restore the waterbody to meet water quality

standards.

What are the Causes for the Impairments on Kokomo Creek?

Kokomo Creek was first placed on the 1996 Impaired Waterbody List based on water quality sampling that was performed by IDEM in 1994. The results from these studies indicated that there were violations of the dissolved oxygen standard at three separate sampling sites. The results also indicated that one of the wastewater treatment plants in the watershed was discharging high levels of ammonia. Fish and other aquatic life require sufficient levels of dissolved oxygen in order to survive. The low levels of dissolved oxygen and the high concentrations of ammonia in the water can be toxic to fish and other aquatic life. Intensive sampling conducted by IDEM in the summer of 1998 along with information provided by the Howard County Health Department indicated that there were several interrelated causes for the low levels of dissolved oxygen. The low level of dissolved oxygen at the downstream sampling site was determined to be a result of sewage from both the wastewater treatment plant discharge and illegal septic system tiles. The decomposing sewage in the stream uses up the dissolved oxygen. The low level of dissolved oxygen at the upstream sites was determined to be due to the overgrowth of nuisance algae which in turn is thought to be a result of increased nutrient concentrations, primarily phosphorus from agriculture, and lack of stream cover, which increases the amount of sunlight reaching the stream. The increased sunlight and the phosphorus cause the algae to grow excessively which upsets the natural balance of algae in the stream. This is known as an algal bloom. The algae produce oxygen through photosynthesis during the daylight hours. At night, the algae use up the oxygen produced during the day, depleting the dissolved oxygen necessary for fish and other aquatic life in the stream.

How can the Impairments be Eliminated on Kokomo Creek?

A number of activities are currently underway locally to help resolve the problems causing the impairments on Kokomo Creek. The Taylor Township Regional Sewer District is being formed. This will bring sanitary sewers into the communities of Oakford, Hemlock and Center, eliminating the raw sewage entering the creek from the septic systems in these communities. The Indiana Department of Natural Resources (IDNR) has initiated a Lake and River Enhancement (LARE) project for the upstream portion of Kokomo Creek. The objective of the project is to work with land users to reduce soil erosion and associated soil and nutrient movement into surface waters. This is to be accomplished by providing technical and financial assistance to land users voluntarily desiring to participate in the program. Cost-share funds will be offered to encourage the installation of vegetative filter strips, grassed waterways, grade stabilization structures, and other measures as well as to promote the adoption of practices such as livestock waste utilization, reduced tillage, and integrated pest and nutrient management. IDEM is in the process of issuing updated discharge permits to the wastewater treatment plants at the Timbernest Apartments and the Regency Mobile Home Park, which include new limits on the discharge of ammonia.

How Long will it take to Restore Kokomo Creek?

Restoration efforts are estimated to take between two to five years from the point of implementing the planned improvements. The success of the implementation plan depends on the progress of the Taylor Township Regional Sewer District and completion of the sewer construction,

conservation efforts through the LARE Program, and the improvements to the wastewater treatment plant discharges. Once improvements are underway, IDEM will monitor the stream to evaluate the conditions and document progress towards meeting the water quality standards.

Where Can I go for More Information?

IDEM will be working cooperatively with the Howard County Health Department, the Howard County Soil and Water Conservation District, and the IDNR Resource Specialist on the restoration of Kokomo Creek. You may contact them at the following telephone numbers:

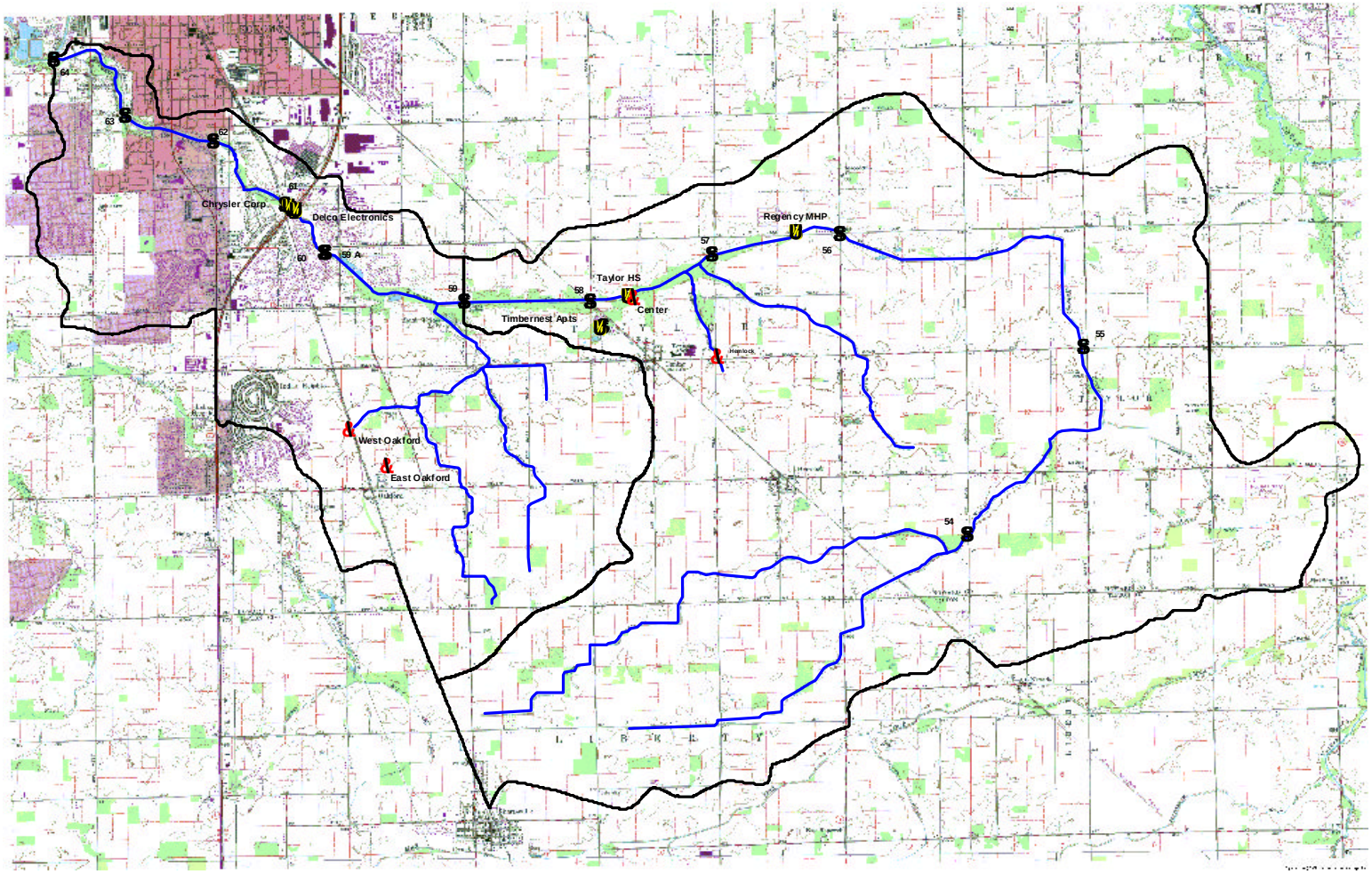
Cynthia L. Wagner, TMDL Program Manager
Environmental Toxicology and Chemistry Section
Indiana Department of Environmental Management
Office of Water Management
Assessment Branch - Shadeland Office
P.O. Box 6015
Indianapolis, IN 46206-6015
Telephone: (317) 308-3214
Toll Free: (800) 451-6027
E-mail: *cwagner@dem.state.in.us*

Gregory T. Lake, B.S., R.E.H.S.
Environmental Coordinator
Howard County Health Department
Division of Environmental Health
120 East Mulberry Street - Room 210
Kokomo, IN 46901-4657
Telephone: (765) 456-2407
email: *healthdept@iquest.net*

Jennifer Bratthauar, Resource Specialist
Indiana Department of Natural Resources
Clinton County Soil and Water Conservation Office
Frankfort Field Office
860 South Prairie Avenue, Suite 1
Frankfort, IN 46041-7439
Telephone: (765) 659-1223
email: *jennifer.bratthauar@in.usda.gov.*

Donald Cree, Resource Conservationist
Howard County Soil and Water Conservation Service
1103 Goyer Road
Kokomo, IN 46902-2777
Telephone: (765) 457-2114

KOKOMO CREEK WATERSHED



1 0 1 2 Miles

N
W E
S

SEPTIC COMMUNITY TILE DISCHARGE LOCATIONS
NPDES FACILITIES
SAMPLE LOCATIONS
KOKOMO CREEK WATERSHEDS (OUTLINED IN BLACK INK)
STREAMS (IN BLUE INK)

Map Prepared By: Dan Knowles